

Candidate Name	Centre Number	Candidate Number

WELSH JOINT EDUCATION COMMITTEE
General Certificate of Secondary Education



CYD-BWYLLGOR ADDYSG CYMRU
Tystysgrif Gyffredinol Addysg Uwchradd

138/03

**GCSE
DESIGN AND TECHNOLOGY**

PAPER 1

(Higher Tier - Grades D to A*)

P.M. TUESDAY, 6 June 2006

(30 minutes)

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Question 1	
Question 2	
Question 3	
TOTAL MARK	

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. Where the space is not sufficient for your answer, continue the answer at the back of the book, taking care to number the continuation correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

No certificate will be awarded to a candidate detected in any unfair practice during the examination.

Answer **all** questions in the spaces provided.

1. (a) (i) Tick (✓) the main reason why designers look at existing products *before* designing new ones. [1]

• To plan how long the product will take to make.

☐

• To see how products are assembled.

☐

• To evaluate their design against the specification.

☐

- (ii) Tick (✓) the main reason why a design specification is written before designing new products. [1]

• To see if the product works.

☐

• To give the designer something to write about.

☐

• To make sure the new product includes the most important features.

☐

- (b) To help manage the manufacturing of design and technology products, we can draw up a time plan or Gantt chart.

Describe the **two** main features of a time plan or Gantt chart.

[2]

.....

.....

- (c) A list of smart materials is shown below.

Thermochromic film

Nitol (muscle wire)

Polymorph

Photochromic dye

Modified starch

Electro-luminescent sheet

- (i) Choose **one** of these materials and describe briefly how it works.

[2]

Name of the smart material:

How it works:

.....

.....

.....

- (ii) State **one** useful application for this smart material.

[1]

.....

- (d) Quality control and quality assurance are essential aspects of modern manufacturing industry.

Explain what you understand by the terms *quality control* and *quality assurance*. $2 \times [2]$

Quality Control:

.....

.....

.....

Quality Assurance:

.....

.....

.....

- (e) Testing materials is an important part of product design.
Choose a product with which you are familiar and describe a reliable test that would be carried out on a specific material to be used in this product.

Note: **do not** select a material named in 1 (c).

Product:

Material: [1]

Description of Test:

.....

.....

[2]

- (f) Study the logos below.



ISO 9001



- (i) State what BSI stands for. [1]

.....

- (ii) Give **one** example of the work of the BSI. [1]

.....

2. (a) The designs and features of computer printers change over time.
Study the information about the two printers shown below.

		
Features	A (Made in 1999)	B (Made in 2004)
Number of pages it can print per minute	12	30
Size (mm)	485mm length 470mm width 505mm height	464mm length 372mm width 212mm height
Weight	14.7kg	10.8kg
Cost when new	£350	£230
Colour of the casing	Grey	Silver and grey
Colour display?	No	Yes

- (i) Other than cost, state **four** ways in which printer **B** has been improved over printer **A**.
4 × [1]

.....

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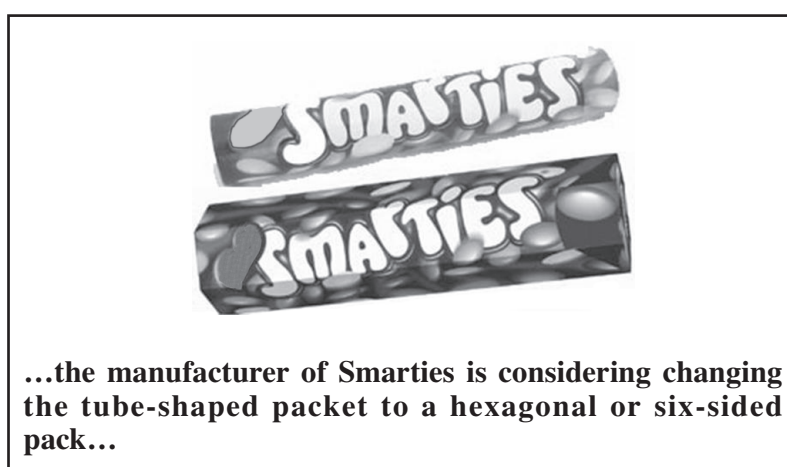
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- (ii) The cost of printers has fallen dramatically in recent years.
Give **two** possible explanations for this.

2 × [2]

- (I)
-
- (II)
-

- (b) Study the newspaper cutting below.



- (i) One possible reason why the manufacturer has decided to change the shape of the packaging is they believe it will promote sales. Give **one** other reason why the manufacturer might want to change the shape of the packaging. [2]

.....

.....

- (ii) State why the manufacturer has not changed the style of lettering for the name of the sweets. [1]

.....

.....

- (iii) Most products are sold packaged in some way.
Give **two** functions of product packaging. [2]

Function 1:

Function 2:

3. Sensible health and safety procedures are important in school design and technology practical activities.

State **two** specific design and technology activities that could pose a danger to your health and safety and then, describe **in detail** what can be done to minimise the risk of the danger to your health and safety. 2 × [3]

Activity I:

To minimise this risk

.....

.....

Activity II:

To minimise this risk

.....

.....

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